1999 MILITARY REVIEW WRITING CONTEST
3D PRIZE

Busting Through

Colonel John F. Antal, US Army

Without a doubt, the most dangerous place in the world is the Korean Peninsula
— David Kay, former chief of the UN Nuclear Inspection Team in Iraq

With three years of combat and 44 years of training experience in Korea, the US Army should have mastered tactics for fighting in restricted terrain. Unfortunately, this is not the case. . . . Imagine a Blue Task Force attack through the NTC's John Wayne Pass opposed by a reinforced OPFOR company with infantry, tanks and massive artillery support. This is the tactical situation faced by combat leaders in Korea should there be a war.

CONSIDER THE UNTHINKABLE: Fearing imminent collapse of their political, social and economic structures, the North Koreans launch a surprise attack on South Korea. The North Korean goal is to execute a short-war campaign plan—to grab as much territory as possible, demand a cease-fire and negotiate the withdrawal of US forces from a position of strength. So far the fighting has been conventional, but the North Koreans have threatened to use chemical and biological weapons. Japanese cities are threatened by the North Korean No-Dong missile—and the Japanese are nervous. Facing possible devastation of Seoul and Tokyo by missile-launched chemical attacks, few regional leaders are willing to call the North Koreans' bluff. The United States desperately rushes all available air power to the region—but it is having minimal effect in the bad weather, and most of the airfields are temporarily unusable after attacks by enemy commando teams, aircraft and missiles. With a smaller army, and commitments all over the world, significant US ground reinforcements will take weeks to arrive.

Time, however, is running out. The Republic of Korea (ROK) and US forces are fighting staunchly but the battle lines move closer to Seoul. Defense is not enough—the enemy must be forced back quickly or Seoul will be engulfed in artillery fire. The weather remains abysmal, with thick fog reducing visibility to a few hundred meters, and most aircraft and helicopters are grounded. US forces in Korea, reeling from hard blows struck by hundreds of North Korean special forces teams, have withdrawn out of artillery range. Somehow the tide of battle must be turned. The ROK/US coalition prepares to launch a ground attack, penetrate the enemy's defenses and knock out as much of his artillery and air defense as possible. The 2d Infantry Division, battered but combat capable, is ordered to spearhead the attack.

An unlikely scenario? For an Army whose thinking is largely European-focused, many might agree. The threat of war in Korea, however, is very real. If war comes to Korea, the ability of US and ROK forces to launch timely ground counterattacks will be decisive. Units earmarked to play a major role in a conflict in Korean would find themselves counterattacking down narrow valleys with little room for traditional *Desert Storm*-like maneuver. Are we prepared to use our technological and training overmatch to its maximum advantage in the rugged, mountainous terrain of Korea? What tactics, techniques and procedures (TTPs) do we apply for decisive operations in restricted terrain?

Operation *Desert Storm* proved that the US Army is the undisputed master of combined arms combat in open terrain.[2] We train for combat in open terrain at the National Training Center (NTC), Fort Irwin, California, the rolling hills of Texas or the open canyons of Colorado. From unit conduct of fire trainer (UCOFT) to combined arms live-fire exercises (CALFEXs), our Abrams tank and Bradley

crews engage targets on relatively flat live-fire ranges at distances of 900 to 2,000 meters. Our Army thinks of battle in open areas that permit us the freedom to maneuver our devastating direct-fire weapons. Even the Army's training literature; TTPs and doctrinal manuals reflect this open-terrain bias. Not a single Center for Army Lesson Learned (CALL) pamphlet has been written on fighting in very restrictive terrain. Even though we have fought more major wars in Asia this century than in any other place on the globe (World War II, Korea and Vietnam), US Army doctrine remains tilted toward a European-style conventional war, largely ignoring mounted combat in other regions and in other terrain.[3]

Many potential battlefields, however, contain mountainous terrain. In Korea virtually all the land is mountainous—although restricted terrain varies in ruggedness. With three years of combat and 44 years of training experience in Korea, the US Army should have mastered tactics for fighting in restricted terrain. Unfortunately, this is not the case. Officers, noncommissioned officers and soldiers arrive in Korea well versed in open warfare but with little understanding of how to fight in restricted terrain. Just imagine what would occur at an NTC rotation if the Blue Task Force was ordered to attack through and secure an objective at the other end of John Wayne Pass, opposed by a reinforced OPFOR company with infantry, tanks and massive artillery support. This is the tactical situation faced by combat leaders in Korea should there be a war.

This article addresses the use of combined arms raids against a North Korean hasty defense during the initial phase of a North Korean attack into South Korea. Although I address a Korean scenario, this discussion applies to other cases of combat in very restricted terrain. This article is based on a study of Korean War "tank raids" and my assessment after six years of training and commanding units in Korea.[4] This article should encourage discussion about combined arms operations in restricted terrain and address the current doctrinal void.

Nature of Combat in Restricted Terrain

Wars should be fought in better country than this.[5]
— Martin Blumenson on combat in very restricted terrain

The first thing that enters most soldiers' minds when they think of mountainous terrain is its value in defense. Defending, however, does not mean sitting still. To be successful the defender must maintain the initiative through the use of firepower and maneuver. Firepower without maneuver is like fighting with one hand tied behind your back—it looks heroic but isn't very smart. Maneuver is "the movement of combat forces to gain positional advantage . . . is the means of positioning forces at decisive points . . . and is rarely effective without firepower and protection."[6] Maneuver puts the firepower where it will do the most damage. Nowhere is the argument for careful study of maneuver and depth more important today than in the rugged hills of Korea.

The modern commander has three counterattack options in restricted terrain: seize the high ground with infantry, bomb the enemy into submission or penetrate the valleys. . . . The second option, bombing the enemy into submission, usually produced indecisive results. The third option, to take the valleys, bypass the heights and maneuver to secure or destroy decisive points succeeded in the Korean War on several occasions with dramatic results.

Korea exemplifies an area of mangrel operations in restricted and very restricted terrain where depth is critical.[7] The ROK/US coalition committed to forward defense in the restricted terrain north of Seoul and along the demilitarized zone (DMZ) for a number of significant political, economic and military reasons. Seoul, the commercial, administrative and political center of South Korea, is only 40 km from the DMZ. With a population of almost 12 million people, Seoul is the 10th largest city in the world. It has much more significance than during the Korean War, when it changed hands four times and was completely destroyed. The memory of that destruction is not lost on the South Koreans, particularly since the North Korean Army (NKPA), the fourth largest in the world, is poised in near-attack status only 40 km away. A North Korean surprise attack is a dangerous possibility. With such limited geographic depth, the need for US maneuver in restricted terrain is obvious.

In general, the restricted terrain of South Korea favors the tactical defense. Commanding hills and narrow valleys prevent the attacker from massing combat power to dominate large areas. The attacker moving down a narrow mountain or steep-walled valley road faces the harrowing prospect of attacking into a trap, where well-sited defenders outnumber his lead forces. An attacker can bring his superior forces only gradually, and then not

completely, against the defender. Enemy flanks are often not assailable except through narrow valleys. Each intervisibility line may hold an ambush. If attacks are made along several avenues of approach, each attack is likely to be isolated from the other. Although an urban explosion in South Korea has expanded the road and highway network and dramatically increased the options for ground maneuver, it has also added another form of restricted terrain to the equation. Maneuver in Korea is hindered by these urban centers as well as by the narrow valleys, steep ridges and chokepoints that channelize and constrict moving combat formations.

We will seldom have enough infantry, nor can we afford the casualties, to clear the high ground with rifles and grenades. The penetration force must have mobility, protection and overwhelming firepower. This means that tanks must form the backbone of the combined arms team that will bust through the enemy's defense. The common excuse that "this is not good tank country" does not respond to the problem.

The defense in restricted terrain, however, also has vulnerable spots. Restricted terrain contains dominating ground that must be held and long valleys that must be protected by the defender to sustain lines of communication and supply. The terrain makes it difficult to maintain the unity and cohesion of large-unit operations. Tidy lines and linear fronts are often impossible. The rugged terrain forces defenders to disperse and rely on the strength of their positions to buttress the defense. Large gaps between strongpoints are the norm and allow the attacker to pick a penetration point and attack the rear of fixed high-mountain positions. Maneuver in restricted terrain is possible if the attacker can concentrate combat power to force a penetration of the defender's strongpoints.

The challenges of attacking in restrictive terrain are not new. Sun Tzu, the ancient Chinese military philosopher, stressed that armies on the attack should stay away from restrictive terrain: "In this type of terrain, even if the enemy entices you, do not advance. Instead, retreat, forcing him to follow."[8] Hundreds of years later an expert on mountain warfare, Jean De Bourcet—whose writings significantly influenced Napoleon Bonaparte—declared that "in a mountain region, the all-important points for military purposes are the defiles, and when these, as is frequently the case, are impregnable against frontal attacks, the general taking the offensive must seek every possible means of turning them, and must so arrange his troops as to fix the enemy's attention on some point other than that of which it is intended to gain possession."[9]

Baron Henri Jomini, in his book *The Art of War*, stressed the offensive in mountainous terrain. "[I]f a country covered with high mountains be favorable for defense in a tactical point of view, it is different in a strategic sense, because it necessitates a division of the troops. This can only be remedied by giving them greater mobility and by passing often to the offensive."[10] In similar fashion, Carl von Clausewitz emphasized that the advantage in mountainous terrain rests with the attacker, not the defender, particularly with regard to hasty defense. "[b]attle in the mountains does not confer all the advantages on the defender . . . when one considers the difficulties of taking up a favorable mountain position at the last moment . . . one will realize that this is a totally unreliable method of defense."[11] The views of Jomini and Clausewitz suggest that an attacker with mobility and concentration of forces can maneuver and defeat a purely positional defense in restricted terrain.

Military analysts of the 20th century concur with Clausewitz. The German army gained vast mountain fighting experience during World War I. This experience is reflected in the German Field Service Regulations of 1933, which state:

"In restricted terrain the attacker often needs only a local and limited superiority in numbers and battle means. Apparently strong heights and rocky positions as well as individual plateaus can be made to fall if we succeed in enveloping, or turning these positions, or by breaking through on a quite small front. The effect of such an attack as a rule is quicker and more decisive in mountains than in the lowlands."[12]

In a similar fashion, the Soviet army believed that "enveloping detachments play an important role in offensives in mountainous terrain."[13] The Germans in World War II successfully demonstrated their ability to launch combined arms operations—including the use of tanks and mechanized infantry—in the mountains of Yugoslavia and Greece. Taking a page from the German book, the British also demonstrated that armor could be used effectively in the very restrictive terrain of Burma. The British used tanks in Burma to spearhead the famous 300-mile drive on Rangoon, capturing the city in three weeks of hard fighting.

A 24th infantry Division tank commander crouches behind his turret after giving the order to fire, Song Sil-li, Korea, 10 January 1952.

War in Korea, Presidio Press

By using armor at Chipyong-ni and Heartbreak Ridge, the US Army found that "armor remained an indispensable part of ground combat, regardless of any limiting conditions under which it had to operate." Aggressive leaders found ways to maneuver tanks and employ combined arms. Despite the very restrictive terrain, they found that "tanks could move better in rugged mountainous terrain than they might have expected. A key was skillful engineer support."

Accordingly the modern commander has three counterattack options in restricted terrain: seize the high ground with infantry, bomb the enemy into submission or penetrate the valleys. The first option was tried unsuccessfully in the Korean War on too many occasions—bloody infantry assaults up steep, well-defended hills. The second option, bombing the enemy into submission, usually produced indecisive results. The third option, to take the valleys, bypass the heights and maneuver to secure or destroy decisive points succeeded in the Korean War on several occasions with dramatic results.

Korean War Tank Raids in Restricted Terrain

Bourcet's belief that the defiles and valleys were significant and his words stressing the futility of frontal attacks should have been studied by American commanders during the Korean War. Unfortunately, several US Army battle streamers from the Korean War carry the names of heroic—and bloody—frontal attacks. Most professional soldiers of that time, trained in the open warfare of World War II, saw the situation in Korea as purely an infantry and artillery war. However, during the initial phase of the battle of Heartbreak Ridge, for example, "artillery alone could not demolish the deep NKPA fortifications, though the 2d Infantry Division's artillery fired 229,724 rounds."[14] US infantry and artillery could not move the enemy off the hills but took 3,700 casualties in the attempt.

The bias of that time was that tanks were not useful in restricted terrain. Some veteran soldiers, including Captain Sam Freedman of the famed 72d Tank Battalion, believed that the solution lay in the use of tanks as part of an integrated combined arms team. Freedman remarked that "tanks can be employed in many spectacular and highly effectual ways . . . the ingenuity of planners who won't take 'no' for an answer has resulted in the discovery of means to bring up tanks for swift and telling strokes that have broken the back of enemy resistance."[15] Freedman and other tankers believed that mobility was partially a state of mind and largely a matter of organization, training and careful planning. The battles of Chipyong-ni and

Although the helicopter permits a quantum leap in mobility in restricted terrain, it only works when weather permits and there is a thorough suppression of enemy air defenses. A combined-arms maneuver force remains the only all-weather, 24-hour maneuver option for conducting raids into the tactical depths of the enemy.

Operation *Touchdown* proved Freedman right.

The Battle of Chipyong-ni validated tank-infantry-artillery-air power cooperation in mountainous terrain and was declared by General Matthew Ridgway to be the most important combined arms battle of the war. The tactical lessons learned at Chipyong-ni, and the relief of the defensive perimeter by Task Force *Crombez*, changed the nature of the fighting in Korea and ended the fear that UN forces would be pushed off the Korean Peninsula.[16] The effect of the Task Force *Crombez* "tank raid" surprised the Chinese and, according to their own after-action reports that were captured shortly after the battle, they were "taught a lesson at the expense of bloodshed."[17]

The value of tank raids was even more dramatic during the last three days of the Battle of Heartbreak Ridge in Operation *Touchdown* from 10-12 October 1951. The 2d Infantry Division employed the 72d Tank Battalion to penetrate the valley to the west of Heartbreak, envelop the enemy defense and win the battle. The accelerated movement of the 72d through the "impassable" Mundung-ni Valley sealed the victory for the 2d Infantry Division by disrupting an entire Chinese infantry division. The 2d Infantry Division attacked with three regiments abreast to fix the defending NKPA as the 72d Armor attack surprised the enemy and dislocated his defense. Operation *Touchdown* proved that a combined arms task force could be decisive even in restricted terrain.[18]

By using armor at Chipyong-ni and Heartbreak Ridge, the US Army found that "armor remained an indispensable part of ground combat, regardless of any limiting conditions under which it had to operate."[19] Aggressive leaders found ways to maneuver tanks and employ combined arms. Despite the very restrictive terrain, they found that "tanks could move better in rugged mountainous terrain than they might have expected. A key was skillful engineer support."[20]

The Combined Arms Raid

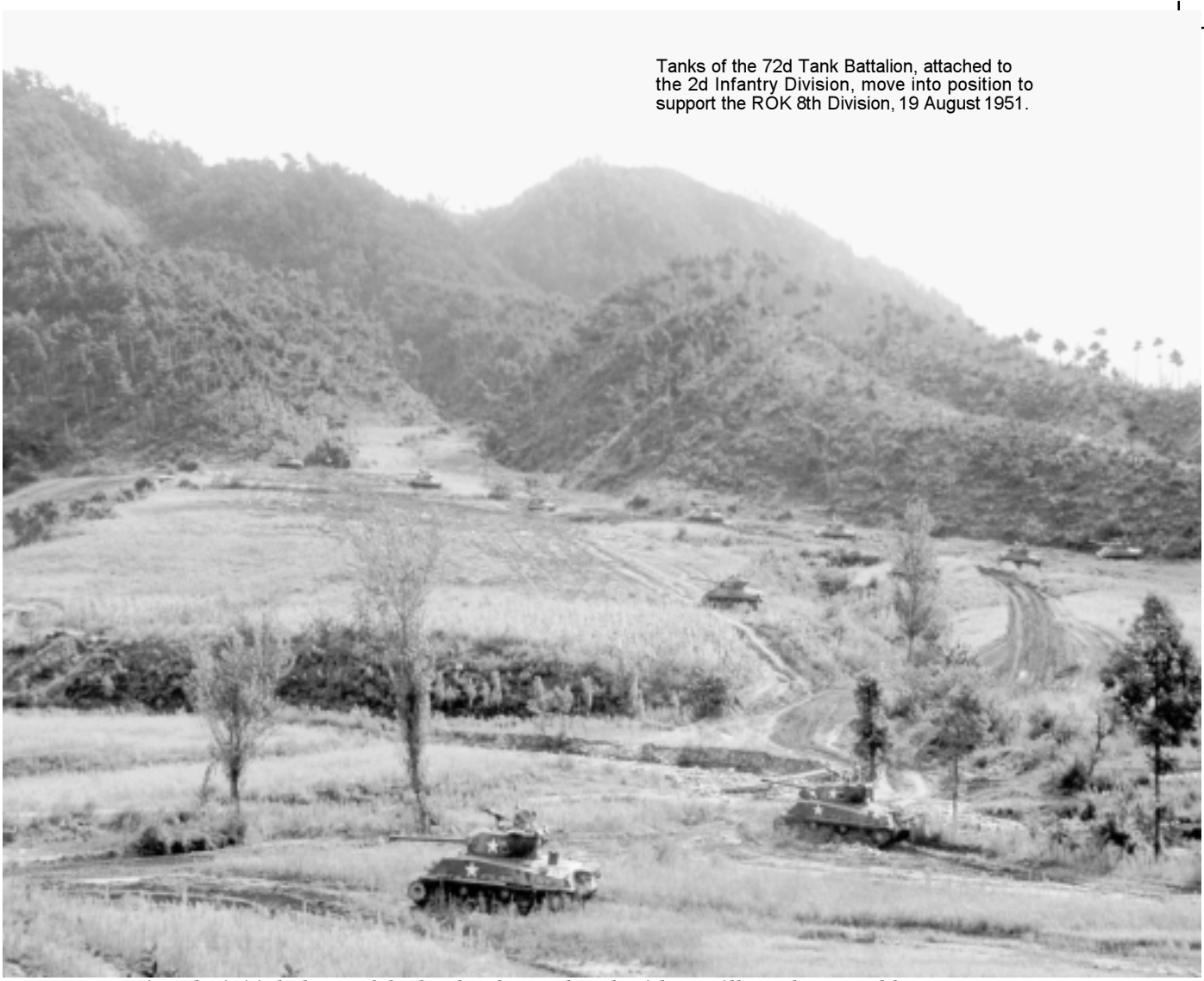
With the rapid development of indirect-fire technology and precision munitions, there are many who believe that victory on a restricted terrain battlefield is merely a matter of firepower. However, until "brilliant munitions" mature, indirect firepower alone will not win wars. The capability of the NKPA and Chinese forces to dig in and avoid defeat from overwhelming US firepower is legendary. No armed force dares assume that superior firepower guarantees victory. We must continue to develop tactics and training that will maximize our technological, organizational and operational advantages.

A successful defense in restricted terrain depends on the "effective simultaneous application of fire and forces to the entire depth of the enemy. . . . The rapid defeat of enemy groupings is impossible today without decisive, flexible and broad maneuver including . . . raiding detachments operating in the enemy rear."[21] In Korea, combined arms raiding forces, concentrated to bust through and exploit a hasty NKPA defense, can turn the tide of battle. Raids offer a means to create depth and regain the initiative for the defender. In restricted terrain they are "not only part of the defenses but are essential in a maneuver defense. Defending commanders with sufficient forces should plan raids in support of their defense."[22]

The principal function of a combined arms raid in restricted terrain is to ensure that maneuver dominates the battlefield throughout its depth. Successful raids can secure decisive points and set the conditions for a series of turning movements or envelopments that would be impossible without maneuver. The goal of maneuver should be "to incapacitate by systemic disruption—whether the 'system' is the command structure of the enemy's forces, their mode of warfare and combat array, or even an actual technical system."[23] Against the NKPA—an army without air support but with significant artillery and air defense capabilities—a powerful combined arms raid may offer the only method to gain depth and retake the initiative.

Eventually an NKPA advance will pause, and when it does, the defender must be ready to strike. Combined-arms raids require a penetration of enemy defenses and the exploitation of the raiding force to secure or destroy an enemy decisive point. The raid should be planned to a tactical depth that is logistically sustainable—usually 10 to 15 kilometers. The mission of the raid force can be terrain or the enemy force itself. A combined-arms raid in restricted terrain will typically have three phases:

- The initial rupture of the enemy positions and the clearing of the enemy along the flanks of the defile or valley to commit the follow-on force.



Tanks of the 72d Tank Battalion, attached to the 2d Infantry Division, move into position to support the ROK 8th Division, 19 August 1951.

War in Korea, Presidio Press

During the initial phase of the battle of Heartbreak Ridge artillery alone could not demolish the deep NKPA fortifications, though the 2d Infantry Division's artillery fired 229,724 rounds. US infantry and artillery could not move the enemy off the hills but took 3,700 casualties in the attempt. It was only during the last three days of the battle that the 2d Infantry Division employed the 72d Tank Battalion to penetrate the "impassable" Mundung-ni Valley and seal the victory by disrupting an entire Chinese infantry division.

- The exploitation by a combined-arms raiding force to secure or destroy a decisive point.
- The defense and linkup or a sweeping attack to return to friendly lines.

Penetrating Enemy Lines in Restricted Terrain

A penetration in the enemy's lines must be made to allow the raiding force to get behind enemy lines. A penetration is defined in FM 71-3, *The Armored and Mechanized Infantry Brigade*, as an attack to "rupture enemy defenses on a narrow front and create both assailable flanks and access to the enemy's rear."[24] FM 100-5, *Operations*, states that the ideal attack might resemble a torrent of water rushing forward and expanding its channels around major resistance. It should move fast, follow reconnaissance units or successful probes through gaps in enemy defenses, then shift its strength quickly to widen penetrations and reinforce successes, thereby carrying the battle deep into the enemy's rear.

A penetration attack in restricted terrain also resembles the water analogy: finding a relative weakness in the enemy defense and conducting a penetration attack along a valley or defile. In restricted terrain the attacker must mass overwhelming combat power at the point of penetration or select a defile or valley that is relatively unguarded in order to catch the defender by surprise with rapid and violent execution. If the direction of attack is well guarded, overwhelming combat power at the point of penetration must stun and suppress the defender

and hinder any reserves from counterattacking in time. Other attacking forces must fix the defender with intense fires along the front.

On the Korean battlefield, the NKPA forces will be dense. Almost every defile and valley will hold forces moving forward or poised in a hasty defense, waiting for supply or reinforcement. Only a very powerful, swift attack force will be able to penetrate an NKPA defense anchored to restrictive terrain. Because penetration is an attack into the strength of the defense, it could be costly in friendly casualties.

Optimum combat power in the lead platoon and combat team is vital. The goal of the combined-arms effort must be to maintain the momentum of the penetration and the goal of the exploitation must be to destroy or secure a decisive point. Capturing a decisive point is a key step in attacking an enemy's center of gravity.

Today, a smart enemy will defend the defiles against an armored penetration by reinforcing his defense with the terrain. Keyhole positions, which allow for single or multiple flank or rear shots at the enemy during limited windows of opportunity without directly giving away the firing position, will anchor his defense along the fingers of the defiles and valleys. It is as if the enemy is firing at you through a keyhole as you pass down a hallway. The attacker, therefore, must prioritize reconnaissance and concentrate decisive combat power at the point of penetration to win the close-range, direct-fire fight at the point of the attack.

To increase force density at the tip of the spear, attackers must put their best and most powerful units up front. The first requirement is the ability to penetrate defended defiles without having to scale every ridgeline and precipice with infantry. We will seldom have enough infantry, nor can we afford the casualties, to clear the high ground with rifles and grenades. The penetration force must have mobility, protection and overwhelming firepower. This means that tanks must form the backbone of the combined arms team that will bust through the enemy's defense.[26] The common excuse that "this is not good tank country" does not respond to the problem. As mentioned earlier, this challenge was met during the Korean War when superb tankers demonstrated "on numerous occasions that they could operate effectively in terrain that doctrinally was considered completely unsuitable for tanks."[27]

Although a dismounted infiltration attack might kick off the penetration battle for the first kilometer and air-assault forces could be used to seize decisive terrain, tanks must lead the rest of the way since only tanks can provide the necessary devastating direct fire and employ mechanical breaching equipment (mine plows and rollers) to punch through hasty obstacle belts. Protection from counterattack and artillery attack is a major issue for air-assault forces, but if they are used, they will require a quick linkup with heavy forces to survive. Although the helicopter permits a quantum leap in mobility in restricted terrain, it only works when weather permits and there is a thorough suppression of enemy air defenses.

A combined-arms maneuver force remains the only all-weather, 24-hour maneuver option for conducting raids into the tactical depths of the enemy. The penetration force, therefore, should be a combined-arms task force with tanks, mechanized infantry, engineers, armored air defense systems, artillery directed by observation helicopters, attack helicopters and close air support. In good weather the combined combat power of ground-attack forces, artillery, attack aviation and close air support can provide overwhelming and devastating power at the point of penetration.

With their mine-plows and rollers, tanks lead the way in the penetration battle. Mechanized infantry in Bradley Fighting Vehicles can provide a converging attack force—or a security force if the terrain is not suitable for tanks or Bradleys. Combat engineers are critical to the continued movement of the penetration, using explosives to destroy obstacles and minefields that cannot be breached mechanically by tanks. When required, the infantry and engineers dismount to secure the next intervisibilty line—not the next ridgeline or mountain top—and always stay within the fire protection of the tanks and Bradleys.

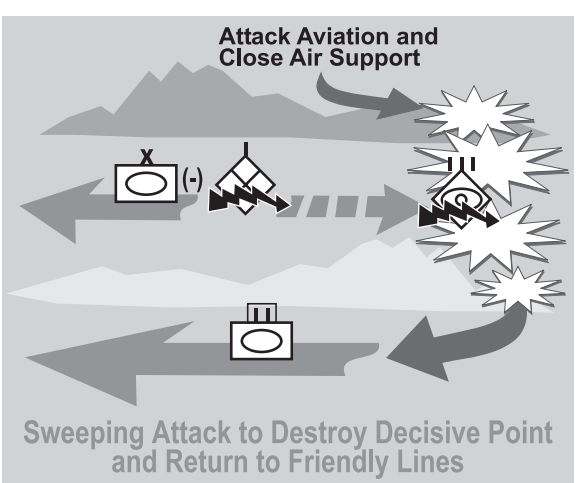
Position Only

Massed indirect fires would set the conditions for success in the valley by conducting a fire strike at the penetration point and maneuvering the fires down along the direction of attack. Elements advancing without cover must have fire support. While the lead tanks work forward, the trail tanks and Bradleys suppress the enemy to both flanks of the defile. Direct-fire engagement procedures must be well drilled to identify targets in three dimensions. Mortar fire must suppress suspected keyhole positions directly ahead of the lead tanks while artillery fires hit farther up the defile. Fires are shifted to suppress defenders and obscure their view as the force advances. Elements unable to advance seek cover and call for smoke and mortar fire for protection. Gaining local fire superiority and maintaining a rapid advance will avoid the enemy's artillery fire traps.

Optimum combat power in the lead platoon and combat team is vital. The goal of the combined-arms effort must be to maintain the momentum of the penetration — to stun and suppress the enemy with armor busting through the valley, mortar fire falling just in front of the tanks, artillery smashing farther up the valley and suppressing likely keyhole positions, attack helicopters killing what is farther in front of the tanks (1,000 meters) and CAS fixing the enemy reserves. In restrictive terrain an armored combined-arms force is the weapon of choice for quick, decisive victory with minimum friendly casualties.

Exploiting the Penetration with a Combined-Arms Raid

Directed by information-age intelligence sources available to today's divisions, the armored combined-arms force finds a gap or makes one, then drives through the dazed defenders. In restricted terrain the attacker is quickly isolated from friendly forces to its rear and flanks. In such terrain the attacker cannot depend on continuous battle lines. To wait for other units to attack across the front, arm-in-arm, surrenders the value of the penetration.



The combined-arms raiding force should be commanded by a single ground force commander. The force should be task-organized based on important calculations: the combat power, quality and training of his forces versus the enemy; the availability of combat multipliers. The higher the quality of the friendly forces and the less time the enemy has been preparing his defenses, the smaller the force can be and still achieve success.

After a powerful, mobile combined-arms force creates a gap it should accelerate and exploit the penetration. The goal of the exploitation must be to destroy or secure a decisive point.[28] Capturing a decisive point is a key step in attacking an enemy's center of gravity, for "decisive points are not centers of gravity; they are the keys to getting at centers of gravity."[29]

North Korea's center of gravity is the NKPA, the *Inmun Gun*. All political power and legitimacy rests on the survival and loyalty of the army to the political structure. The primary decisive points of an attacking NKPA force that has fought its way south of the demilitarized zone are its brigade, division and corps artillery groups.[30] These artillery groups must be located within 10 to 18 kilometers of the front to support the attack.[31] NKPA tactics hinge on the ability to maneuver using artillery firepower or massed infantry infiltration in restricted terrain. The artillery blows a hole and the armor follows. When the armor is held up, the infantry attacks to await the redeployment of the artillery and then the artillery blows a new hole in the defense. Penetrating with massed artillery, then exploiting with armor and infantry is central to the NKPA way of conventional war. Although it has a large amount of long-range artillery in heavily protected bunkers along the DMZ, the NKPA's mobile artillery is a decisive point whose destruction has operational consequences and is a target worthy of committing ground maneuver forces behind enemy lines.

The combined-arms raiding force should be commanded by a single ground force commander. The force should be task-organized based on important calculations: the combat power, quality and train-

ing of his forces versus the enemy; the availability of combat multipliers (artillery, army aviation and close air support needed to set the conditions for the continued movement along the direction of attack; and the length of time the enemy has been preparing his hasty defense). The higher the quality of the friendly forces and the less time the enemy has been preparing his defenses, the smaller the force can be and still achieve success.

The combined-arms raid is an important tool for shaping the battlefield in restricted terrain because it creates depth to gain positional advantage and grab the initiative. The raid of a small group of Israeli tanks in October 1973 unhinged and threatened to defeat the entire Egyptian Third Army. An M1 tank company appearing in the midst of an enemy army artillery group can be a powerful force of decision.

Once the enemy's defenses are penetrated, artillery, attack helicopters and CAS fix or destroy any mobile reserves. The force that conducted the penetration either holds its ground and passes through a combined-arms raiding force or the penetration force continues the attack to a decisive point. At this point the combined-arms raiding force will find itself fighting asymmetrically against enemy elements desperately trying to block its advance—as the 72d Armor did at Heartbreak Ridge. The raiding force must then take a page from the combined arms manuals of the Korean War and be trained to expect to operate "deep in enemy territory; the presence of the enemy to the front flanks and rear is a condition to be expected. All personnel must be conditioned to consider such conditions more normal than otherwise."[32]

While the corps, army and theater commanders fight a traditional deep battle against the enemy's operational echelons, the division commander effects the immediate close fight by attacking deep with a combined-arms raiding force. The raid becomes the division's deep battle and its main effort. "Deep" is a relative term with regard to restrictive terrain. In the desert, tactical moves of 20-30 km in several hours can be normal. In very restrictive terrain, an attack of 10 km can take days. The nature of the terrain compresses time and space for the attacker, making the "deep" raid shallow by open-warfare standards. Considering that the distance from Seoul to the DMZ is less than 40 km, a deep attack of 10 km can be valuable to a division commander.

Taking advantage of every possible mobility corridor, the combined-arms raiding force concentrates against the enemy's fragmentation. As the raiding force approaches the artillery groups, the enemy must decide to keep them in place and block the exploitation force or withdraw his artillery and conduct a delay. If he does not move his artillery, the exploitation force must close with and engage the artillery groups. If the enemy does move his artillery, it is both unavailable for combat and can be destroyed as it deploys on the march. The combination of accelerated armored movement and artillery, helicopter and CAS firepower leaves the defending enemy with only disastrous options.

Once the decisive point is secured or destroyed, the raiding force can either defend and wait to link up with follow-on forces or conduct a sweeping attack back toward friendly lines. A hasty defense will depend on the success of the attack, the strength of the enemy in the area and the time required for forces to link up with the raiding force. Depending on the situation, this could be a high-risk operation if the combined-arms raiding force bypasses resistance and reaches the decisive point with minimal delay. Unless linkup is achieved, the force will face exhausted fuel supplies and increased enemy counterattacks.

The most promising option is to return the combined-arms raiding force to friendly lines by conducting a "sweeping attack," defined by the ROK as an attack by a mobile, armored force to destroy enemy forces along the direction of attack. The sweeping attack penetrates enemy lines, destroys an enemy decisive point and continues the attack back toward friendly lines along another avenue of attack. The sweeping attack places mobile, ground-combat power in much the same role as attack helicopters are used in an engagement forward of friendly lines. The sweeping attack cycles the combined-arms raiding force into enemy territory and back again. A sweeping attack in the restricted terrain of Korea would usually extend the force only 12-18 km deep before returning to friendly lines.

The combined-arms raid is an important tool for shaping the battlefield in restricted terrain because it creates depth to gain positional advantage and grab the initiative. "Raids into the enemy rear have become an important and indispensable part of modern battle as demonstrated by the raid of a small group of Israeli tanks into the rear of the Third Egyptian Field Army in October 1973. This raid

unhinged and threatened to defeat the entire Third Army."[33] An M1 tank company appearing in the midst of an enemy army artillery group can be a powerful force of decision.

Today, US battalions in Korea are vastly superior to similar North Korean units in technology, organization, operations and training. Future combat in restricted terrain should employ small, self-contained, mobile combined-arms forces of infantry, tanks, engineers, artillery and combat aviation. Directed with information-age intelligence, they can rapidly penetrate a gap in the enemy's defenses and exploit the penetration to attack a decisive point. The combined-arms raid in restricted terrain is a difficult option to execute but offers the possibility of operational and strategic success in a place such as Korea. Against the NKPA, whose second-generation antitank weapons cannot penetrate the front or flanks of the M1A1 tank, busting through is an important option for US forces.

Training for the Penetration Attack in Restricted Terrain

Such a minuet of destruction does not occur without practice. Historically, the most successful armies have applied combined arms at the lowest possible level. The greater the training and coordination of the combined-arms force, and the better its breaching capability, the faster the penetration. The faster the combined-arms force moves to its objective—an enemy decisive point—the greater the success and the smaller the friendly losses.[34] Agile plans, excellent reconnaissance, concentration at the tip of the spear and the complete integration of combined-arms are critical for success of the penetration attack in restricted terrain. Winning in restricted terrain will require a high frequency of combined arms training and a thorough understanding of the terrain. Training in open warfare is not enough.[35]

First, the attacking force must be organized for success. In restricted terrain, the battle is carried at the point of the spear. This may be a platoon, section or at times a single vehicle. The lead unit must be organized with ample combat power and mobility assets. In the defile, tank crews will be challenged to destroy an enemy defender who controls all the natural advantages. The tactics of fighting in defiles and restrictive terrain must be thoroughly understood. If the lead tank is destroyed or disabled and the defile is blocked, an entire task force attack may be slowed or stopped. The defender will try to ambush the attacker in the valleys and defiles, at point-blank ranges, from concealed positions. To defeat the ambusher, the attacking tank and Bradley crews must wrest the initiative from the defender.

In this situation the fighting skills of tank and Bradley crews make the difference between success or halting, bloody failure. High-performing tank crews must steal that advantage away from the defender and gain the initiative with techniques to acquire and destroy targets in the close-range, direct-fire fight. Firing first is a decisive advantage to the attacking tank, section, platoon and company. Their battlefield situational understanding is critical to gaining the "3 to 6 second advantage" over the defender.[36]

"Deep" is a relative term with regard to restrictive terrain. In the desert, tactical moves of 20-30 km in several hours can be normal. Restrictive terrain compresses time and space for the attacker, making the "deep" raid shallow by open-warfare standards. Considering that the distance from Seoul to the DMZ is less than 40 km, a deep attack of 10 km can be valuable to a division commander.

The mental agility of the company and task force commanders and that of the task force staff is equally important. Once a combined-arms column of 235 armored and wheeled vehicles attacks—the size of a typical four-battalion armored task force—enters a narrow defile, there are few opportunities to turn around or move away from an enemy fire sack. Original plans may require modification as the enemy situation changes or becomes clear. Attacking forces, therefore, must be able to rapidly modify their direction of attack. In restricted terrain, plans are a basis for changes, so every mission needs a base plan with branches.

Excellence in combined-arms warfare in restricted terrain is a product of frequent practice and trained leaders.[37] Commanders must learn to feel, rather than try to see, the battlefield. In a narrow valley the commander may be restricted to the view of the vehicle in front of him. It is usually impossible to see large portions of battlefield, as commanders are trained to do in open-terrain fighting. In restricted terrain the commander must anticipate battlefield decisions and trust his trained subordinate leaders to command their elements according to his intent.

In short, combat in restrictive takes special training. Tactics in restricted terrain must be practiced and precise—from rapid direct fire in three dimensions

(forward, flanks, rear and up and down the hills), quick target acquisition skills, close-range, direct-fire accuracy, effective use of machineguns and the complete integration of all combined-arms firepower. Providing combined-arms training and organizing forces to penetrate and exploit the penetration in restricted terrain is a major training and resourcing challenge. Commanders should put this training together and practice often enough to master the techniques that win in restricted terrain.

A great army employs good weapons, excellent training and effective tactics appropriate to the terrain and enemy situation. Although the Army must be a full-spectrum force, ready to respond to the needs of the nation, it is important to remember that the possibility of a short-notice, mid-intensity war in the rugged hills of Korea still looms. A quick look at the globe will show that many potential battlefields are located in areas with mountainous and restricted terrain. Many of our potential enemies, composed primarily "second-wave" military forces, will try to leverage the terrain to make up for their training and technological deficiencies.[38] The sparse US Army doctrine on fighting tank and mechanized forces in restricted terrain is not encouraging.[39]

Although much has changed since 1950, the US Army is still deployed in a near-wartime footing.[40] It faces a dangerous, unpredictable and implacable foe whose economy and political stability are crumbling—a foe that also has a large conventional military force, an offensive arsenal of chemical weapons and, very probably, rudimentary nuclear weapons. The volatile North Korean situation will likely end in the next few years in either "explosion or implosion."[41]

The lessons of our history in restricted-terrain combat should not be forgotten. On 26 November 1950, 485,000 Chinese attacked the better-equipped, highly trained and veteran UN force of 365,000 troops. Without air cover, significant artillery support or the vaunted three-to-one advantage, the Chinese surprised and decimated the UN units. Road-bound and imbued with a "tactical and psychological dependence on continuous battle lines, such as has been known in Europe," the UN battalions were cut off and chopped up in one bloody battle after another.[42] The linear view of tactics held by US Army officers contributed to the debacle. Fearing encirclement, many units lost all sense of cohesion and organization when they discovered the Chinese had blocked their lines of communication to the south. The Chinese, on the other hand, were firepower-poor yet excelled at maneuver in restricted terrain. The Chinese attacks forced MacArthur's UN troops back to the 38th parallel.

The lessons from the penetration battles in steep-walled valleys of Korea in 1951 apply to US forces today. We must be wary of a "firepower solves all" mentality and develop tactics, techniques and procedures to develop maneuver in restricted terrain. A raid behind enemy lines is a high-risk operation but offers dramatic operational results. In very restricted terrain, against an enemy with a high density of forces, the combined-arms raid may be the only alternative to a slow, grinding battle of attrition. A well-trained combined-arms task force—using the mobility and firepower of obstacle-breaching M1 tanks, assisted by infantry protected in Bradley Fighting Vehicles, supported by combat engineers, overwatched by Kiowa Warrior and Apache helicopters, attacking an enemy stunned and neutralized by effective 120mm mortar suppression, devastating 155mm howitzer fires and accurate close air support—is the decisive formation in restricted terrain.[43]

In restricted terrain a penetration of the enemy defenses without exploitation is wasted effort. American commanders need an instrument that can transform a penetration into a decisive victory. The combined-arms raid is an important tool for achieving depth in restricted terrain. The answer lies in developing our view on the art of war in restricted terrain. We have the combined-arms instruments; we only need to arrange them in the proper package to reap their maximum potential. If we expect to bust through in restricted terrain, we need to practice the art of penetration and exploitation. Maybe it is time we gave a brigade combat team the mission to fight through John Wayne pass at the NTC. ***MR***

NOTES

1. David Kay, former Chief of the UN Nuclear Inspection team in Iraq, in an *Impower America* interview in the spring of 1994.

2. Combined arms warfare is the simultaneous application of combat, CS and CSS toward a common goal. Combined arms warfare produces effects that are greater than the sum of the individual parts. The combined arms team strives to conduct fully integrated operations in the dimensions of time, space, purpose and resources to confuse, demoralize and destroy the enemy with the coordinated impact of combat power. The goal of this sudden and devastating impact of combined arms is to paralyze the enemy's response and force his destruction or defeat.

3. "Disturbingly, the US Army and the armor establishment in general seemed eager to discount much of the armor experience in each war [Korea and Vietnam] as irrelevant to future conflicts once those wars ended" from David A. Niedringhaus, "US Army Armor in Limited War: Armor Employment Techniques in Korea and Vietnam," Masters Degree Thesis: Ohio State University: 1987, 146.

4.Tactical lessons learned in 1951—from the defensive battle of Chipyong-ni and offensive battle Operation *Touchdown* that ended the battle of Heartbreak Ridge—show that combined arms penetration attacks in restrictive terrain can be decisive. The lessons of Chipyong-ni and *Touchdown* dramatically depict the value of combined arms combat in restricted terrain. When combined arms was employed, casualties were reduced and the opportunities for decisive victory enhanced. The lessons learned offer a metaphor for combat in restricted terrain based on J.F.C. Fuller's combat functions—protecting and hitting. The metaphor

is that of a shield and sword. At Chipyong-ni the infantry acted as a shield, pinning the enemy to battle, while Task Force *Crombez* acted as the sword that hastened the defeat of the enemy's plan. A variation of the same method was employed in *Touchdown* to win Heartbreak Ridge. The infantry battalions fixed the defenders and the armored task force enveloped the position in the west.

5. Martin Blumenson, *Saleno to Cassino, United States Army in World War II* (Washington, D.C., 1969), 234, quoting MG John P. Lucas concerning combat in the very restricted terrain.6. US Army Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office [GPO], 14 June 1993), 2-5.

6. US Army Field Manual (FM) 100-5, *Operations* (Washington, D.C.: Government Printing Offic3e[GPO], 14 June 1993, 2-5.

7. Restricted terrain slows movement by requiring zig-zagging or frequent detours. Restricted terrain for armored and mechanized forces typically consists of moderate to steep slopes or moderate to densely spaced obstacles such as trees, rocks, or buildings. . . . Severely Restricted terrain hinders or slows movement in combat formations unless some effort is made to enhance mobility. This could take the form of committing engineer assets to improving mobility or of deviating form doctrinal tactics, such as moving in columns instead of line formations or at speeds much lower than those preferred." FM 34-130, *Intelligence Preparation of the Battlefield* (Washington, DC: GPO, November 1993), 2-15.

8. Sun Tzu, adapted and illustrated by Tsai Chih Chung, translated by Brian Bruya, *Sunzi Speaks, The Art of War* (New York: Anchor Books, 1994), 109.

9. Jean De Bourcet from his "Principles of Mountain Warfare," in Sir Basil Liddell Hart, *The Sword and Pen. Selections from the World's Greatest Military Writings* (New York: Thomas Y. Crowell Company, 1976), 93.

10. Antonne Henri Jomini, *The Art of War*, translated by Captain G.H. Mendell (Westport, CN: Greenwood Press, originally published by J.B. Lippincott & Co, Philadelphia, 1862), 151.

11. Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Peret (Princeton, NJ: Princeton university press, 1976), 537. Clausewitz goes on to say that "in a decisive battle, mountainous terrain is of no help to the defender; on the contrary, that it favors the attacker. This is in direct contradiction to the general opinion; but then, general opinion is usually in a state of confusion, and unable to distinguish between diverse aspects of a question. People are so much impressed by the powerful resistance of a minor unit that they assume that all defensive mountain warfare possess extraordinary strength. They are surprised when the existence of such strength in the core of all resistance, the defensive battle, is denied. On the other hand, they are always ready to blame the incredible mistake of cordon warfare for the loss of any defensive battle in the mountains, completely ignoring the force of circumstances that are inevitably involved," 423.

12. German Field Service Regulations, *Truppenfuhrung* [1933], 1989 transcript of 1936 translation by LTC Milburn, US Army Command and General Staff College, Fort Leavenworth (Berlin: Reichswehr, 1933), 147.

13. MG V.G. Reznichenko, *Tactics*, translated at CIS Multilingual Section, National Defense headquarters, Ottawa, Canada, May 1985 (Moscow: Voyennoye Izdatel'stvo, 1984), 130.

14. T.R. Fehrenbach, *This Kind of War, A Study in Unpreparedness* (New York: Macmillan Company, 1963), 521.

15. CPT Sam Freedman, "Tankers at Heartbreak," *Armor* (Fort Knox, KY: US Armor Association, September-October 1952), 24.

16. The tank-infantry cooperation within Task Force *Crombez* was poor, largely due to improper training and procedures. Nevertheless, the relief of Chipyong-ni by a tank raid was a bold attempt to change the conditions of battle with maneuver.

17. Chinese Communist Forces, Headquarters XIX Army Group, "A collection of Combat Experience" (29 March 1951 Critique of Tactics Employed in the First Encounter with the Enemy at Chipyong-ni, Annex Number 1 to Periodic Intelligence Report Number 271, 2d Infantry Division, translated by ATIS, 29 June 1951), 2-4. The report goes on to say, "The enemy's use of tanks surprised us and arrived almost at the door of the Regimental Command Post before they were discovered, seriously threatening the flanks and rear of the 2d Battalion (Chinese). The Regiment immediately ordered the displacement of the 2d Battalion . . . we have underestimated the enemy," 2-4. Communist casualties from the Battle of Heartbreak Ridge were estimated at over 25,000.

18. The truce talks at Panmunjom, which were broken off on 22 August, resumed on 25 October, largely because the fighting at Heartbreak Ridge had so weakened the communist defenses in the area that they would sell their souls to gain time. With the conclusion of the Battle of Heartbreak Ridge, the war of movement was over. Operation *Touchdown* was the last battle of maneuver fought in the Korean War. From this point on, the war became a war of attrition and outpost skirmishes while the negotiations in Panmunjom dragged on. The Korean War finally ended on 27 July 1953. The United States had won time, but not victory. As a result, the battles of the Korean War were largely ignored by history.

19. David A. Niedringhaus, "US Army Armor in Limited War: Armor Employment Techniques in Korea and Vietnam," Masters Degree Thesis: Ohio State University, 1987, 54.

20. Niedringhaus, 27. The relief of the 23d Regimental Combat Team at Chipyong-ni and Operation *Touchdown*, the attack of the 72d Armor down Mundung-ni Valley at the Battle of Heartbreak Ridge, provide insights to the modern application of penetration attacks in restricted terrain. In both cases a tank heavy force was able to penetrate enemy lines and turn the enemy's defenses—just as Bourcet had preached in is writings in the 18th century. The major problem during the Korean War was that the Army was not as well trained or organized to fight as combined arms teams as the situation demanded.

21. Edward N. Luttwak, *Strategy*, *The Logic of War and Peace* (Harvard, MA: Belknap Press, 1987), 16.

22. Bogdan Swita, "The OMG in the Defense" in *Military Review* (Fort Leavenworth: US Army Command and General Staff College, July 1992), 37.

23. Ibid.

24. Luttwak, 94.

25. Department of the Army, FM 71-3 *The Armored and Mechanized Infantry Brigade* (Washington, DC: GPO, 8 January 1996), 4-11. The forms of maneuver are envelopment, turning movement, infiltration, penetration and frontal attack. The forms of maneuver are part of a commander's art of war.

26. Our M1 tanks and Bradley Fighting Vehicles have a decisive role to play in restricted terrain. Tanks and Bradleys provide the technology overmatch that provides the greatest degree of protections and the highest volume of direct-fire. The M1A1 and M1A2, with superior armor protection, provide a mobile, tough, battle-winning platform. The capabilities of the M1AI as compared to NKPA armor and antitank weapons is a decisive advantage. The armor protection of the M1A1 cannot be defeated in the front or flanks by any known direct-fire NKPA tank or antitank weapon. The major killer of attacking tanks is mines, and hasty minefields can be penetrated with M1 tanks equipped with plows and mine-rollers, rocket-launched mine clearing charges [MICLICs] and combat engineers.

27. Niedringhaus, 27. "Initial assessments of armor performance and usefulness in Korea concluded that armor remained an indispensable part of ground combat, regardless of any limiting conditions under which it had to operate," 54.

28. Decisive points are further explained in FM 100-5 as "Decisive points provide commanders with a marked advantage over the enemy and greatly influence the outcome of an action. Decisive points are often geographical in nature, such as a hill, a town, or a base of operations. . . . Decisive points help commanders gain or maintain the initiative. Controlling these points in the attack helps them gain freedom of operational maneuver, thus maintaining the momentum of the attack and sustaining the initiative. . . . Securing decisive points can give the operational commander the flexibility to select from more than one line of operation for further advance." FM 100-5, 6-6 through 6-7.

29. FM 100-5, explains that capturing the enemy's decisive points is critical to gaining and maintaining the initiative. "Normally, more decisive points will be in a theater than a commander can seize, retain or destroy with his available resources. Therefore planning for decisive point is critical," 6-8.

30. Clausewitz, 619. Clausewitz determined that the first task in planning for a war is "to identify the enemy's centers of gravity, and if possible trace them back to a single one. The second task is to ensure that the forces to be used against that point are concentrated for a main offensive." The concept of decisive points is precisely what Clausewitz meant by "tracing centers of gravity back to a single one."

31. The NKPA has 4,500 self-propelled howitzers to support the advance of 3,500 tanks and an active duty force of 1,200,000 men. The average range of NKPA artillery is 11-25 km. To put only one-third of their range forward of the front lines the artillery would have to be positioned within 16.5 km of friendly forces.

32. FM 17-32 *Tank Platoon and Tank Company* (Washington, DC: GPO, 8 October 1952), 2-3.

33.Swita, 37.

34. US and ROK forces must use to their advantage the decided technological and training advantage they possess over the North Korean Army. Accurate artillery, devastating Multiple Launched Rocket Systems, fast, heavily armored tanks and impressive thermal sights and night vision equipment — all of these technological advantages will play a critical role in combat in the defiles. Technology overmatch, although vital, is not the only decisive element of victory. US forces outmatched the North Koreans and Chinese in technology during the Korean War. Today the North Koreans believe that they can negate US and ROK technology with primitive solutions—the use of hundreds of special forces teams; the employment of underground facilities to protect armored formations ready to attack; hardened artillery sites protecting one of the largest artillery forces in the world from aerial attack; and by conducting the attack with surprise and in bad weather. US forces outmatched the North Koreans and Chinese in almost every form of technology during the Korean War of 1950-1953, yet the UN forces were nearly defeated.

35. Jomini, 149-151. "When a country whose whole extent is mountainous is the principal theater of operations, the strategic combinations cannot be entirely based upon maxims applicable in open country . . . if a country covered with high mountains be favorable for defense in a tactical point of view, it is different in a strategic sense, because it necessitates a division of the troops. This can only be remedied by giving them greater mobility and by passing often to the offensive."

36. SSG Stephen Krivitsky, "The Three to Six Second Advantage; Tank Combat in Restricted Terrain," in *Armor* (Fort Knox, Kentucky, May-June 1996), 18.

37. Robert D. Heinl, *Dictionary of Military and Naval Quotations* (Annapolis, Md.: Naval Institute, 1966), 197. "In regard to mountain warfare in general, everything depends on the skill of our subordinate officers and still more on the morale of our soldiers." Clausewitz, *Principles of War*.

38. The concepts of Alvin and Heidi Toffler, as found in their book *War and Anti-War*. The First Wave occurred during the agricultural revolution characterized by hand-to-hand combat; the Second Wave as the industrial revolution represented by wars of mass destruction as in World War I and World War II; and the Third Wave, the ongoing information revolution, is knowledge-based warfare as evidenced in Operation *Desert Storm*.

39. One of the few US Army field manuals that explains how to fight in mountains is FM 90-6, June 1980.

40. The 2d Infantry Division in Korea remains the only US Army division with an alert status measured in 3-6 hours and has all of its tanks, Bradleys and Howitzers uploaded with live, "go to war" ammunition at all times.

41. Comments made by GEN Gary Luck, Commander in Chief US Forces Korea, at Camp Red Cloud, 3 July 1996.

42. Fehrenbach, 158.

43. The M1 tank possesses the only form of armored protected mechanical breaching in the US Army inventory. M1 tanks are equipped with tank plows and mine rollers — very effective against hasty minefields and obstacles laid by an attacker who has reversed roles to the hasty defense.

Colonel John F. Antal is the special assistant to the chairman of the Joint Chiefs of Staff, the Pentagon, Washington, D.C. He is a graduate of the US Military Academy and the US Army Command and General Staff College. He has served in various command and staff positions, including battalion operations officer; G3 training officer; secretary of the general staff for the 1st Cavalry Division; brigade operations trainer, National Training Center (NTC), Fort Irwin, California; and executive officer, 1st Battalion, 63d Armor (OPFOR), NTC. He has written numerous books, including Combat Team: The Captains' War: An Interactive Exercise in Company-Level Command in Battle *and* Infantry Combat: The Rifle Platoon: An Interactive Exercise in Small-Unit Tactics and Leadership.